Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1-27 (Canceled)

28. (New) A system for optimizing placement of network equipment and distribution of information load in a network disposed among at least two sites, comprising:

a demand input structure having a plurality of demands, each of the demands being associated with a corresponding time point;

means for sorting said plurality of demands by the corresponding time points;

means for transforming a topology of the network into a network model including a multi-nodal directed graph model having a plurality of arcs;

an optimization processor associated with said means for transforming, said optimization processor operating to minimize a cost function corresponding to said multi-nodal directed graph so as to generate a solution set comprising network placement information and demand routing information for a particular time point; and

updating means to recursively update said network model and said cost function for each time point in said demand input structure based on said solution set obtained for a previous time point.

29. (New) The system of claim 28, wherein said means for transforming is configured to transform the topology into the multi-nodal directed graph based on a ring structure associated with said network.

30. (New) The system of claim 28, wherein each of said plurality of demands is associated with a selected communications channel rate between said sites.

31. (New) The system of claim 30, wherein said selected communications channel rate is a same rate for each of said plurality of demands.

32. (New) The system of claim 30, wherein said selected communications channel rate is different for at least one of said plurality of demands.

33. (New) The system of claim 28, wherein said demand input structure comprises a data structure residing in a computer-readable medium device.

34. (New) The system of claim 28, wherein said plurality of demands comprises a portion of higher priority demands and a portion of lower priority demands.

35. (New) The system of claim 34, further comprising means for optimizing said portion of lower priority demands after each of said higher priority demands have been optimized by recursively updating said network model and said cost function for all time points associated with said higher priority demands.

36. (New) The system of claim 35, wherein said means for optimizing said portion of lower priority demands comprises means for routing said portion of lower priority demands via a capacitated shortest path algorithm with respect to each of said lower priority demands.

37. (New) A planning method for optimally deploying network equipment in a network over a period of time, said network including a span disposed between at least two sites, the method comprising:

providing a demand input structure having a plurality of demands to be serviced by said network, each of the demands being associated with a corresponding time point and a demand quantity indicating units of communication capacity;

sorting said plurality of demands by their time points;

starting with a set of the demands having an earliest time point,

transforming said network into a network model including a multi-nodal directed graph having a plurality of arcs, said transforming being based on a topology of said network,

optimizing the routing of said set of demands using said multi-nodal directed graph and a cost function associated therewith,

obtaining network equipment placement information and demand routing information based on said optimizing of the routing of said set of demands, and

updating said network model and said cost function associated therewith based on said network equipment placement information and said demand routing information, and

repeating said optimizing, said obtaining, and said updating for the remaining time points provided in said demand input structure, using said updated network model and cost function to optimize the routing of the remaining demands associated with said time points.

38. (New) The planning method of claim 37, further comprising:

scheduling successive deployment of said network equipment in said network based on said network equipment placement information obtained for each of said time points.

39. (New) The planning method of claim 37, wherein each of said plurality of demands is associated with a selected communications channel rate between said sites.

40. (New) The planning method of claim 39, wherein said selected communications channel rate is the same for each of said plurality of demands.

41. (New) The planning method of claim 39, wherein said selected communications channel rate is different for said plurality of demands.

42. (New) The planning method of claim 37, wherein said demand input structure comprises a data structure residing in a computer-readable medium device.

43. (New) The planning method of claim 37, wherein said plurality of demands comprises a portion of higher priority demands and a portion of lower priority demands.

44. (New) The planning method of claim 43, wherein said transforming, said optimizing, said obtaining, and said updating are performed first for optimizing said portion of higher priority demands.

45. (New) The planning method of claim 44, further comprising optimizing said portion of lower priority demands by using a capacitated shortest path algorithm with respect to each of said lower priority demands.

46. (New) The planning method of claim 37, wherein said network equipment placement information comprises an indication of the presence of an Add/Drop Multiplexer at a selected site.

47. (New) The planning method of claim 37, wherein said network equipment placement information comprises an indication of the absence of an Add/Drop Multiplexer at a selected site.

48. (New) The planning method of claim 37, wherein said cost function comprises a flow cost term and an equipment cost term.

49. (New) The planning method of claim 37, wherein said optimizing is performed by employing an integer programming technique.

50. (New) The planning method of claim 37, wherein said multi-nodal directed graph is derived from a ring structure associated with said network.

51. (New) The planning method of claim 37, wherein the demand quantity indicates a particular multiplexer level.

52. (New) The planning method of claim 37, wherein said optimizing further comprises sorting the plurality of demands by corresponding ones of the demand quantities.

53. (New) The planning method of claim 52, wherein said sorting is performed in descending order based on the corresponding ones of the demand quantities.

54. (New) The planning method of claim of claim 37, wherein said optimizing further comprises providing a time-slot-assignment-compliant solution set.

55. (New) The planning method of claim 54, wherein said time-slot-assignment-compliant demand routing is derived from at least one time-slot-interchange-compliant solution set.